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Committee on the Peaceful Uses of Outer Space
Scientific and Technical Subcommittee
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Draft report

Addendum

VIII. Space weather

1. In accordance with General Assembly resolution 68/75, the Scientific and Technical Subcommittee considered agenda item 11, "Space weather".

2. The representatives of Canada, China, Egypt, Germany, Japan, Pakistan, the Republic of Korea, the Russian Federation, Switzerland and the United States made statements under agenda item 11. During the general exchange of views, statements relating to the item were made by representatives of other member States.

3. The Subcommittee heard the following scientific and technical presentations:

(a) "Canadian space weather science and research: from discovery to operations", by the representative of Canada;

(b) "International Centre for Space Weather Science and Education (ICSWSE) of Kyushu University", by the representative of Japan;

(c) "The use of space technologies for the implementation of space data infrastructure of the Ministry of Agriculture (IDE-MINAGRI) of Chile", by the representative of Chile;

(d) "Space weather services: building resilience through international partnerships", by the representative of the United States;

(e) "The use of the global navigation satellite systems for space weather: the Italian case", by the representative of Italy;

(f) "A geophysical approach to assess space weather impacts on Earth", by the representative of Brazil;

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(g) "Austrian contributions to the European Space Agency's space situational awareness space weather programme: real-time detection of solar eruptions and space weather effects on board aircraft", by the representative of Austria;

(h) "Advances in Canada's contributions to space situational awareness", by the representative of Canada;

(i) "Highlights of the Scientific Committee on Solar-Terrestrial Physics (SCOSTEP) Climate and Weather of the Sun-Earth System, phase II (CAWSES II) scientific program (2009-2013)", by the observer for SCOSTEP;

(j) "Variability of the Sun and its terrestrial impact (VarSITI) — Scientific Committee on Solar-Terrestrial Physics (SCOSTEP) new scientific programme (2014-2018)", by the observer for SCOSTEP.

4. The Subcommittee had before it the report on the United Nations/Austria Symposium on Space Weather Data, Instruments and Models: Looking Beyond the International Space Weather Initiative, held in Graz, Austria, from 16 to 18 September 2013 (A/AC.105/1051).

5. The Subcommittee noted that progress had been made over the past year in advancing space weather capability, both nationally and internationally. It was noted that efforts to monitor the Sun and near-Earth space, to perform research to improve prediction, and to develop and deliver real-time services were of importance to the international community. It was also noted that space weather involved global phenomena driven by large solar eruptions that impact large areas of the Earth simultaneously. It was important, therefore, to monitor and to understand the drivers of space weather, as well as the impacts on Earth and in space.

6. The Subcommittee noted with appreciation that Canada, China, Egypt, Germany, Japan, Pakistan, the Republic of Korea, the Russian Federation, Switzerland, the United States, SCOSTEP and the Office for Outer Space Affairs had reported on their achievements, projects, international space weather programmes and the activities that they had carried out in 2013 for a better understanding of the ionosphere and the impacts of space weather on Earth. For example, there had been substantial progress in the observation of the equatorial ionosphere, solar transients, energetic particles from space, as well as space weather effects on global navigation satellite systems (GNSS).

7. The Subcommittee noted that new space missions and ground-based instrumentation would ultimately provide data that could substantially improve space weather predictions.

8. The Subcommittee noted that the expert meeting on improving space weather forecasting in the next decade, held on the margins of its current session, had brought together international scientists currently working in space weather research to discuss the paths for improvement of space weather forecasting during the next decade. The Subcommittee also noted the following recommendations made by the expert meeting:

(a) Recognizing the success of observations in recent projects and the critical information gained from them, it was recommended an urgent strategy to

ensure that there was continued access to observations of transients in the inner heliosphere, in particular, the Earth-directed events;

(b) A capability for sharing and hosting of data from space- and ground-based instruments relevant for space weather research and forecasting facilitated via the existing virtual observatories should be encouraged;

(c) The deployment of new instruments and instrument arrays, along with the accompanying education and public outreach, should be continued;

(d) The development of improved forecasting and "nowcasting" capabilities, including for space weather at other planets, with special emphasis on supporting robotic exploration, should be supported.

9. The Subcommittee expressed its gratitude to the Office for Outer Space Affairs for its support in organizing the expert meeting.

X. Use of nuclear power sources in outer space

10. In accordance with General Assembly resolution 68/75, the Subcommittee considered agenda item 13, "Use of nuclear power sources in outer space".

11. The representatives of Mexico, the United States, Venezuela (Bolivarian Republic of) and the representative of Chile, on behalf of the Group of Latin American and Caribbean States, made statements under agenda item 13. During the general exchange of views, statements relating to the item were also made by representatives of other member States.

12. The Subcommittee encouraged States and international intergovernmental organizations to begin or to continue implementing the Safety Framework for Nuclear Power Source Applications in Outer Space (A/AC.105/934).

13. The view was expressed that the Safety Framework would facilitate the conduct of such missions on a bilateral and multilateral basis between States and international intergovernmental organizations. The delegation expressing that view was also of the view that the widespread implementation of the Safety Framework would provide assurance to the global community that nuclear power source applications were being developed, launched and used in a safe manner.

14. The view was expressed that the Safety Framework, in its present form, was not adequate to meet the challenges posed by the use of nuclear power sources in outer space and that, in the regulation of the use of nuclear power sources in outer space, due consideration should be given to relevant norms of international law, the Charter of the United Nations and the United Nations treaties and principles on outer space. The delegation expressing that view was also of the view that there should be greater coordination and interaction between the Scientific and Technical Subcommittee and the Legal Subcommittee in order to develop binding legal instruments to define the responsibility of States in the use of nuclear power sources in outer space and to undertake research on the ways and means of optimizing or substituting for the use of nuclear energy in outer space activities.

15. The view was expressed that encouraging national implementation of the Safety Framework should remain a high priority of the Subcommittee.

16. Some delegations expressed the view that more attention should be given to the safety of the use of nuclear power sources in outer space through adequate strategies, long-term planning, regulations and the promotion of binding standards, as well as the Safety Framework for Nuclear Power Source Applications in Outer Space.

17. Some delegations expressed the view that Governments bore international responsibility for national activities involving the use of nuclear power sources in outer space conducted by governmental and non-governmental organizations and that the matter concerned all humanity.

18. Some delegations expressed the view that more consideration should be given to the use of nuclear power sources in terrestrial orbits in order to address the problem of potential collisions of nuclear power source objects in orbit, as well as to their accidental re-entry into the Earth's atmosphere.

19. The view was expressed that the proliferation of nuclear power sources in outer space, including terrestrial orbits, should not be allowed, as the effects of the use of nuclear power sources on humankind and the environment had not been assessed and there was no definite framework establishing responsibilities and introducing technical and legal tools that could effectively address critical situations that might arise because of undue practices.

20. The view was expressed that the use of nuclear power sources in outer space should be as limited as possible and that, while nuclear power sources were needed for some interplanetary missions, no justification existed for their use in terrestrial orbits, for which other sources of energy were available that were much safer and had been proved to be efficient.

21. The view was expressed that the use of nuclear reactors in outer space should be limited to the means of propulsion and for use as an alternative source of energy (other than for propulsion) for operating scientific instruments and transmitting data for exclusively peaceful purposes.

22. Pursuant to General Assembly resolution 68/75, the Working Group on the Use of Nuclear Power Sources in Outer Space was reconvened under the chairmanship of Sam A. Harbison (United Kingdom). The Working Group held [...] meetings.

23. At its [...] meeting, on [...] February, the Subcommittee endorsed the report of the Working Group, including its amended multi-year workplan (see annex [...], para. [...], to the present report).